

SEQUENCE LISTING

<110> THE HOSPITAL FOR SICK CHILDREN

<120> DIAGNOSIS OF SHWACHMAN-DIAMOND SYNDROME

<130> 3206-263/PAR

<140> PCT/CA03/01320

<141> 2003-08-29

<150> 60/406,950

<151> 2002-08-30

<160> 50

<170> PatentIn version 3.1

<210> 1

<211> 1604

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<223> human SBDS

<220>

<221> CDS

<222> (185)..(934)

<223>

Sequence Listing.txt

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cgcactgggtg gttgggtcag tgccgcgcgc cgatcggtcg ttaccgcgag gcgctgggtg      120
ccttcagggt ggacggcgcg ggtcagccct ggttcgcccg cttctgggtc tttgaacagc      180
cgcg atg tcg atc ttc acc ccc acc aac cag atc cgc cta acc aat gtg      229
  Met Ser Ile Phe Thr Pro Thr Asn Gln Ile Arg Leu Thr Asn Val
    1             5             10             15

gcc gtg gta cgg atg aag cgt gcc ggg aag cgc ttc gaa atc gcc tgc      277
Ala Val Val Arg Met Lys Arg Ala Gly Lys Arg Phe Glu Ile Ala Cys
    20             25             30

tac aaa aac aag gtc gtc ggc tgg cgg agc ggc gtg gaa aaa gac ctc      325
Tyr Lys Asn Lys Val Val Gly Trp Arg Ser Gly Val Glu Lys Asp Leu
    35             40             45

gat gaa gtt ctg cag acc cac tca gtg ttt gta aat gtt tct aaa ggt      373
Asp Glu Val Leu Gln Thr His Ser Val Phe Val Asn Val Ser Lys Gly
    50             55             60

cag gtt gcc aaa aag gaa gat ctc atc agt gcg ttt gga aca gat gac      421
Gln Val Ala Lys Lys Glu Asp Leu Ile Ser Ala Phe Gly Thr Asp Asp
    65             70             75

caa act gaa atc tgt aag cag att ttg act aaa gga gaa gtt caa gta      469
Gln Thr Glu Ile Cys Lys Gln Ile Leu Thr Lys Gly Glu Val Gln Val
    80             85             90             95

tca gat aaa gaa aga cac aca caa ctg gag cag atg ttt agg gac att      517
Ser Asp Lys Glu Arg His Thr Gln Leu Glu Gln Met Phe Arg Asp Ile
    100            105            110

gca act att gtg gca gac aaa tgt gtg aat cct gaa aca aag aga cca      565
Ala Thr Ile Val Ala Asp Lys Cys Val Asn Pro Glu Thr Lys Arg Pro
    115            120            125

tac acc gtg atc ctt att gag aga gcc atg aag gac atc cac tat tcg      613
Tyr Thr Val Ile Leu Ile Glu Arg Ala Met Lys Asp Ile His Tyr Ser
    130            135            140

gtg aaa acc aac aag agt aca aaa cag cag gct ttg gaa gtg ata aag      661
Val Lys Thr Asn Lys Ser Thr Lys Gln Gln Ala Leu Glu Val Ile Lys
    145            150            155

cag tta aaa gag aaa atg aag ata gaa cgt gct cac atg agg ctt cgg      709
Gln Leu Lys Glu Lys Met Lys Ile Glu Arg Ala His Met Arg Leu Arg
    160            165            170            175

ttc atc ctt cca gtc aat gaa ggc aag aag ctg aaa gaa aag ctc aag      757
Phe Ile Leu Pro Val Asn Glu Gly Lys Lys Leu Lys Glu Lys Leu Lys
    180            185            190

cca ctg atc aag gtc ata gaa agt gaa gat tat ggc caa cag tta gaa      805
Pro Leu Ile Lys Val Ile Glu Ser Glu Asp Tyr Gly Gln Gln Leu Glu
    195            200            205

atc gta tgt ctg att gac ccg ggc tgc ttc cga gaa att gat gag cta      853
Ile Val Cys Leu Ile Asp Pro Gly Cys Phe Arg Glu Ile Asp Glu Leu
    210            215            220

```

Sequence Listing.txt

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ata aaa aag gaa act aaa ggc aaa ggt tct ttg gaa gta ctc aat ctg      901
Ile Lys Lys Glu Thr Lys Gly Lys Gly Ser Leu Glu Val Leu Asn Leu
    225                230                235

aaa gat gta gaa gaa gga gat gag aaa ttt gaa tgacacccat caatctcttc      954
Lys Asp Val Glu Glu Gly Asp Glu Lys Phe Glu
240                245                250

acctctaaaa cactaaagtg tttccgtttc cgacggcact gtttcatgtc tgtggtctgc    1014
caaatacttg cttaactat ttgacatttt ctactttgtg ttaacagtgg acacagcaag    1074
gctttcctac ataagtataa taatgtggga atgatttggg tttaattata aactgggggtc    1134
taaatacctaa agcaaaattg aaactccaag atgcaaagtc cagagtggca ttttgctact    1194
ctgtctcatg ccttgatagc tttccaaaat gaaagttact tgaggcagct cttgtgggtg    1254
aaaagttatt tgtacagtag agtaagatta ttaggggtat gtctatacaa caaaaggggg    1314
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cagatataga aaaattgtgc cggacttacc tttcattgaa catgctgcca taacttagat    1494
tattcttggg taaaaaataa aagtcactta tttctaattc ttaaagttta taatatatat    1554
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<210> 2

<211> 250

<212> PRT

<213> Homo sapiens

<220>

<221> misc_feature

<223> human SBDS

<400> 2

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Met Ser Ile Phe Thr Pro Thr Asn Gln Ile Arg Leu Thr Asn Val Ala
1          5          10          15

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```

Val Val Arg Met Lys Arg Ala Gly Lys Arg Phe Glu Ile Ala Cys Tyr
          20          25          30

```

```

Lys Asn Lys Val Val Gly Trp Arg Ser Gly Val Glu Lys Asp Leu Asp
          35          40          45

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```

Glu Val Leu Gln Thr His Ser Val Phe Val Asn Val Ser Lys Gly Gln

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Sequence Listing.txt
60

50

55

Val Ala Lys Lys Glu Asp Leu Ile Ser Ala Phe Gly Thr Asp Asp Gln
65 70 75 80

Thr Glu Ile Cys Lys Gln Ile Leu Thr Lys Gly Glu Val Gln Val Ser
85 90 95

Asp Lys Glu Arg His Thr Gln Leu Glu Gln Met Phe Arg Asp Ile Ala
100 105 110

Thr Ile Val Ala Asp Lys Cys Val Asn Pro Glu Thr Lys Arg Pro Tyr
115 120 125

Thr Val Ile Leu Ile Glu Arg Ala Met Lys Asp Ile His Tyr Ser Val
130 135 140

Lys Thr Asn Lys Ser Thr Lys Gln Gln Ala Leu Glu Val Ile Lys Gln
145 150 155 160

Leu Lys Glu Lys Met Lys Ile Glu Arg Ala His Met Arg Leu Arg Phe
165 170 175

Ile Leu Pro Val Asn Glu Gly Lys Lys Leu Lys Glu Lys Leu Lys Pro
180 185 190

Leu Ile Lys Val Ile Glu Ser Glu Asp Tyr Gly Gln Gln Leu Glu Ile
195 200 205

Val Cys Leu Ile Asp Pro Gly Cys Phe Arg Glu Ile Asp Glu Leu Ile
210 215 220

Lys Lys Glu Thr Lys Gly Lys Gly Ser Leu Glu Val Leu Asn Leu Lys
225 230 235 240

Asp Val Glu Glu Gly Asp Glu Lys Phe Glu
245 250

<210> 3

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

Sequence Listing.txt

<223> primer

<400> 3

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19

<210> 4

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 4

ctatgacagt attcgtaaga ctagg

25

<210> 5

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 5

ggggatttgt tgtgtcttg

19

<210> 6

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 6

ctttcctcca gaaaaacagc

20

<210> 7

<211> 20

Sequence Listing.txt

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 7

aaatggtaag gcaaatacgg

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<210> 8

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 8

accaagttct ttattattag aagtgac

27

<210> 9

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 9

gctcaaacca ttacttacat attga

25

<210> 10

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> primer
<400> 10
cacttgcttc catgcaga 18

<210> 11
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> primer
<400> 11
aaagggtcat tttaacactt c 21

<210> 12
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> primer
<400> 12
gaaaatatct gacgtttaca aca 23

<210> 13
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
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<400> 13
tccactgtag atgtgaacta actc 24

<210> 14
<211> 20

Sequence Listing.txt

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<223> primer

<400> 14
cactctggac tttgcatctt

20

<210> 15

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 15
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18

<210> 16

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 16
agctatgctg cagctgttac

20

<210> 17

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

Sequence Listing.txt

<223> primer

<400> 17

atgcatgtcc aagtttcaag

20

<210> 18

<211> 21

<212> DNA

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<220>

<223> primer

<400> 18

tccatggcta tattttgatg a

21

<210> 19

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 19

taagcctgcc agacacac

18

<210> 20

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 20

cactctggac tttgcatctt

20

<210> 21

<211> 19

Sequence Listing.txt

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 21

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<210> 22

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 22

agataaagaa agacacacac aact

24

<210> 23

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 23

gaaatcgctt gctacaaa

18

<210> 24

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

Sequence Listing.txt

<223> primer

<400> 24

tcagcttctt gccttcac

18

<210> 25

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 25

taagtaagcc tgccagaca

19

<210> 26

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 26

catcaaggct tttttccaag

20

<210> 27

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 27

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18

<210> 28

<211> 21

Sequence Listing.txt

<212> DNA

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<223> primer

<400> 28

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21

<210> 29

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide

<400> 29

Ile	Lys	Lys	Glu	Thr	Lys	Gly	Lys	Gly	Ser	Leu	Glu	Val	Leu	Asn	Leu
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<210> 30

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide

<400> 30

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<210> 31

<211> 20

<212> DNA

<213> Artificial Sequence

Sequence Listing.txt

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 <223> primer
 <400> 31
 gcccttcactt tcttcatagt 20

<210> 32
 <211> 19
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer
 <400> 32
 gcttgcctca aaggaagtt 19

<210> 33
 <211> 19
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer
 <400> 33
 cagccgacga ccttgtttt 19

<210> 34
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer
 <400> 34
 gtgccaacgc tgtgtttt 18

Sequence Listing.txt

<210> 35

<211> 719

<212> DNA

<213> Homo sapiens

<400> 35

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agtgagtcgc ggcgccgcgc actggtggtt gggtcagtgc cgcgcgccga tcggtcgta    180
ccgcgagggc ctggtggcct tcaggctgga cggcgcggtt cagccctggt tcgccggctt    240
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aatgtggccg tggtagcgat gaagcgtgcc ggaagcgcct tcgaaatcgc ctgctacaaa    360
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tccgagcttg gcgcctaagc caagggtttc ttctttatctt ggttggttcg gattgggttg    600
ttgggttggg gttttgtttt gttggtgtca taaaagctgc agccaagaaa tctcgtaatt    660
gtggtccttt tcctagaata atgatggctg agaacctagt cttacgaata ctgtcatag    719
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<210> 36

<211> 733

<212> DNA

<213> Homo sapiens

<400> 36

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aaaatacaaa gttagccggg tgtggtggcg catgcctgta atcccagtta ctcaggaggc    180
tgaggcggga gaatcacttg aacccgggag gctgagggtta cagtgacctg agatcgcgcc    240
attgcactcc agcctgggca aaaacagtga aattccatct aggggcgggg gttggggggt    300
aagaaaaaga aaactgccct ctacactaaa ggtcatcagg gggatttggt gtgtcttgcc    360
gttcatgttg ttgccatctc gtatttaaata gtaaatgcat gtccaagttt caagtatatt    420
cacataggac tttctctcct gccctcaciaa gggaaaaaga cctcgatgaa gttctgcaga    480
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Sequence Listing.txt

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cccaactcagt gtttgtaaatt gtttctaaag gtcagggttg caaaaaggaa gatctcatca 540
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tagctaaccc taataaccat ttataacgta tttgtagata tattaacat taaaggctgt 660
ttttctggag gaaagactaa ccaagcaata atgtgaactg cacagtgtca cttctaataa 720
taaagaactt ggt 733

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<210> 37

<211> 899

<212> DNA

<213> Homo sapiens

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<400> 37
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<210> 38

<211> 1488

<212> DNA

<213> Homo sapiens

Sequence Listing.txt

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ttccctgcta cctgggttcga gaacattttc atcaccacaa aaagaaagtc agtatccatt 180
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aataaatttg tagcaaacat ttagatgttg taaacgtcag atattttc 1488

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<210> 39

<211> 1556

<212> DNA

<213> Homo sapiens

Sequence Listing.txt

<400> 39

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gtgtggtggt gggttcctgt aatcccagtt tcttgggagg ctgaggcagg agaatcactt	240
gaacctggga ggcggaggct gcagtgagcc aagatcacac cactgcactc tatctcaaaa	300
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atcagagttt tctagtttgt cccttcatt tacagctgaa gaatcagaat aagtgtttaa	480
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gcagctcttg tgggtgaaaa gttatttga cagtagagta agattattag gggtatgtct	1200
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aatggaactt gtgttctgag ggtcattatg gtatcgtaat gttaaagcttg gatgatgttc	1320
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<210> 40

<211> 720

<212> DNA

<213> Homo sapiens

Sequence Listing.txt

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ccgcgaggcg ctggtggcct tcaggctgga cggcgcggtt cagccctggt ttgccggcct 240
ctgggtcttt gaacagccgc gatgtcgatc ttcaccccca ccaaccagat ccgcctaacc 300
aatgtggccg tggtagcgat gaagcgcgc aggaagcgtc tcgaaatcgc ctgctacaga 360
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gctgtccgag cttggcgcct aagccaaggg tttctttatt tggttgggtt cgattgggtt 600
gttggtttgg ggttttgtt ttgttggtgc ataaaagctg cagccaagaa atctcataat 660
tgtggtcctt ttcctagaat aatgatggct gagaacctag tgttccgaat actgtcatag 720

```

<210> 41

<211> 722

<212> DNA

<213> Homo sapiens

```

<400> 41
aaatggtagg gcaaatacag ttctgagttt tgaatatgtt ccctcaggcc gatgcgggca 60
gatcacttga ggccaggagt tcgaggccag cctggccaac atgaaacacc atcttacta 120
aaaatacaaa attagccggg tgtggtggcg catgcctgta atcccagcta ctcaggaggc 180
tgaggcagga gaatcacttg aacccgggag gcggacgttg cagtgagccg agatcgcgcc 240
attgcactcc agcctgggca aaaacagtga aattccatct aagggcgggg gggggaagaa 300
aactgccctc tacactaaag gtcatcaggg ggatttggtg tgtcttgccg ttcattgtgt 360
tgccatctcg tatttaaatg taaatgcatg tccaagtctt aagtatatct acataggact 420
ttctctcctg ccctcacaag ggaaaaagac ctgatgaag ttctgcagac ccactcagt 480
tttgtaaatag tttcctaagg tcagggtgcc aagaaggaag atctcatcag tgcgtttgga 540
acagatgacc aaactgaaat ctgtaagcag gcgggtaaca gctgcagcat agctaaccct 600
aataaccatt tataacgtat ttgtagatat attaaacatt aaaggctgtt tttctggagg 660
aaagactaac caagcaataa tgtgaactgc acaatatcac ttctaataat aaagaacttg 720
gt

```

Sequence Listing.txt

<210> 42

<211> 904

<212> DNA

<213> Homo sapiens

<400> 42

```

gctcaaacca ttacttacat attaatagct ggagaggatg aaatttaatt ttctccccag      60
ttactcattt ttgtcgtta gttaataaat agtgtgtgat agagaaagat agtgatttct      120
taactgtgtt ggcatttttt tagattttga ctaaaggaga agttcaagta tcagataaag      180
acacacacaa ctggagcaga tgtttaggga cattgcaatt attgtggcag acaaatgtgt      240
gactcctgaa acaaagagac catacaccgt gatccttatt gagagagcca tgaaggacat      300
ccactatttg gtgaaaacca acaggagtac aaaacagcag gtgagtggtc tctcatgtca      360
tcaaaatata gccatggaaa tcagttttct ctgaagaaat cattaaaata atgggtctgg      420
ggccaggcac aatggttcat acccgtaatc ctagcacttt gggagccaag atgggaggat      480
tgcttgaggc ctggaaacag cctgggaaac atagggacgc cccatctcta aatttttttg      540
tttattgttg tttttttgtt tgagacagag tcgcactgtg ttgccaggc tggagtgcag      600
tggcacgata tcggctcact tacaatctcc acctcccgcg ttcaagcaag tctcctgcct      660
cagcctccca agtagctggg attataggca cgcgccacca caccagcta attttgttat      720
ttttagtaga gttgagggtt taccatgttg gccaggctgg tcttgaactc ctgacctcag      780
gtgatccgct cgccttggcc tcccaaagtg ctgggattac aggcacgag taccgtaccc      840
tacctctaata ttttttaata taaaaaatta aatttaaaaa aatgggtttg catggaagca      900
agtg                                              904

```

<210> 43

<211> 1527

<212> DNA

<213> Homo sapiens

<400> 43

```

aaagggtcat tttaacacct ctttttgaat ttttcaattt acatataatt cacatacaat      60
aaatttcaca ctcataaagt gtgtacactt taagtggat attaacaag tttgggaacc      120
ttccctgcta cctggtttga gaacattttc atcaccacaa aaagaaagtc agtatccatt      180

```

Sequence Listing.txt

```

agtagctatc ccccatTTTT cccccacagg cccttcccaa ccactaatct cctgtcgtta 240
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gggttcatac atgttgtaac ctgcatcagc atgtcatttc ttttttatgc cggaataata 360
gcccactgta cggaaaaaaa catattttgt tcattcattt atcagttgat agacattggg 420
ttgctttcac ttttgagcta tgatgagcaa tgctgctata aaatttcttg tatgtttttg 480
tgtagacata tattttcatt tctgtatacc tggggactac caaacctatt tctaaaacag 540
ctgcaccatt ttacattacc accaacagcg ttttaagagtt cagtttctcc acatcctcag 600
taatacttgt cattgtctgt ctttttgatg atggccatcc tggtggtatc ttgtcgtcgt 660
tttgatttgc atttccttaa taatgatttg agcatatttc catgtgctta ttggtgcctc 720
gtctgtctgc ttttgagaaa tctctgttca gggtctttgc ccccttttta ttctcgtctc 780
gtcaccaga ctagagtgc gtggcgcat ctcggctcat tgcaaaactc gcctcccggg 840
ttcaagcaat tctcctgcct cagcctcttg agtagctggg actacaggcg tgtgctacca 900
caccggcta atttttcttt ttttgatatt ttagtagaga cggggtttca ccatgttggc 960
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gaaaacctta tgaaataata tagtagaaga aattgcattc tcgattttgt cttggtaggc 1260
tttggaagtg ataaagcagt taaaagagaa aatgaagata gaacgtgctc acatgaggct 1320
tcagttcatc cttccagtga atgaaggcaa gaagctgaaa gaaaagctca agccactgat 1380
caaggtcata gaaagtaaag attatggcca acagttagaa atcgtaagag tcaaataatt 1440
tctttgcttc atgttaccta aatattgtat tctctagtaa taaatttgta gcaaacattc 1500
agacattgta aacagtcaga tattttc 1527

```

<210> 44

<211> 1553

<212> DNA

<213> Homo sapiens

<400> 44

```

tccactgtag atgtgaaacta acccatctga cactacttga agttctaaaa tctttgcaaa 60
actgtacacg tgggccaggc acagtggctc atacctgtaa tcccagcact ttgggaggcc 120
gaggcgagca gataacacgg tgaaaccttg tctctactaa aaatacaaaa aataagccag 180

```

Sequence Listing.txt

```

gtgtggtggt gggcgtctgt aatcccagtg tcttgggagg ccgaggcagg agaatcactt 240
gaacctggga ggtggaggct gcagttagcc aagatcacac cactgcactc tatctcaaaa 300
aaaaaataaa acaaaaacat acacatggtg tctacgtaag tcttcacatt gctttttctc 360
cttcatacgt ggaggtgact ttactgagct ataaaatgta atgctaaatt ttagtatgag 420
aagaatcaga gttttctagt ttgtcccttc catttacagc ggaagaatca gaataagtgt 480
ttaaacatag ggattaatgc cttgtcacag ggggctacat ggatacttga gggcagaggc 540
tgaactggaa ccagtggtgc cgccctaccc attgtcttat ctattgcacc atagaactgt 600
ggtattagag atctggacag cattgtgctt gcctcaaagt taaagctgag tttatttctgt 660
gtcttgtctc tcctcatttg gtaaaactgct acgttaaatg tttcaggtat gtctgattga 720
cctgggctgc ttccgagaaa ttgatgagct aataaaaaag gaaaccaaag gcaaagggtc 780
tttggaagta ctcaatctga aagatttgaa gaaggagatg agaaatttga atgacaccca 840
tcagtctctt cacctctaaa aactaaaagt gttttcgttt ccaacagcac tgtttcatgt 900
ctgtggtctg ccaaatactt gctcaaaacta tttgacattt tctatctttg tgtaaacagt 960
ggacacagca aggttttcct acataagtat aataatgtgg gaatgatttg gttttaatta 1020
taaactgggg tctaaatcct aaagcaaat tgaaactcca ggatgcaaaa tccagagtgg 1080
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gacaaaaggg gggcttttcc taaaaaagaa aacatgatgc ttcatttcta cttaatggaa 1260
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ccataactta gattattctt ggttaaaaaa taaaagtcac ttatttctaa ttcttaaagt 1440
ttataatata tattaatata gctaaaattg tatgtaatca ataaaaccac tcttatgttt 1500
attaaactat ggcttgtgtt tctagacaac ttcctaactc cttttctttt ctc 1553

```

<210> 45

<211> 723

<212> DNA

<213> Mus musculus

<400> 45

```

aacgacccgc cticctttga ggtgcctggg tggaactaga gggcgtaaaa agtcacggcg 60
cgcaggcgtg gttgctttct tatcggccta gtgcgccact tgacgcatgt gcagtagggc 120

```

Sequence Listing.txt

aatcggg	cgt	g	cggtagctt	cttcctggt	aggttccgga	agagccgcgc	actccttggg	180
cg	ttaaggg	t	cgcgccg	cagggtcgtt	tcagccgagc	acttggcgtc	ccctcgagct	240
cgagatctgt	gaacagccac	catgtcgatc	ttcaccccca	ccaaccagat	ccgactgacc			300
aatgtggccg	tgggtgcggat	gaagcgggga	gggaagcgct	tcgaaatcgc	ctgctataaaa			360
aacaagg	tcg	tcggctggcg	gagtg	ggcgtg	tgagtaatcc	tgtgccaga	gttcggcggc	420
ctggcctccc	taaccccggc	tctgcgacc	catcggtacc	tttcaggcct	ggtttacc	ccg		480
attcggattg	ggttctgctt	tgggattttg	ttagtatcat	aaaaactgcc	aactacaaac			540
gccatcagag	ccgggtggga	ccgatggttt	aggcctgtaa	tcccagcgcc	caggaaactg			600
aggcaggagg	attgctgcga	tttccaggcc	agcctggaac	gtgtgtgtgt	gtgtatgtgt			660
atgtgtgtgt	tgtgtgtgtg	tatgtgtatg	tgtgtgtgag	agagaccgtg	accgaccctg			720
tac								723

<210> 46

<211> 733

<212> DNA

<213> Mus musculus

<400> 46

gtagtgc	tctt	cgctactgcc	atctagggac	agatatcca	ggacagaaga	aacaccactc	60
cccaccacac	cctgagtttc	cttacataaa	acaatgatgt	agtttttccc	tctgtgg	tga	120
agtgggagaa	tccagatact	gtccttcgca	ggtagccacc	agagagagag	tgtgg	tgtgt	180
gtgtgtgtga	gatttctctt	tttttttttc	tttagggttt	ttgttttg	ttt	ttttttgtt	240
ttgtttgg	ttt	ttttttttt	ttttttttga	gactggcctc	aaactcccaa	tttcctgcc	300
tctgcctcct	aatgg	tgag	ttacagatgt	gcacatcaca	cccagcttgc	agcacttgc	360
atttctcttg	ttgctatctt	gtgtttaaat	gtgagtggat	tttcttacta	tccagtggat		420
cacataggac	tttctctcct	gccctttcaa	gggaaaaaga	ccttgatgaa	gttctgcaga		480
cccattcagt	gtttgtaa	at	gtttccaaag	gtcaggttgc	caagaaggaa	gacctcatca	540
gtgcatttgg	gacagacgac	cagactgaaa	tctgcaagca	ggtaggtcct	gccaggtgca		600
atgtaacaaa	atctcacgat	ggtaggcaac	atctggacca	ctgtgtttac	tg	tttttctt	660
gatgagtttt	tgttgtttta	gcatttgttg	ggccctccc	acctccagtt	tatattgttg		720
ggcaatttgg	gga						733

<210> 47

Sequence Listing.txt

<211> 912

<212> DNA

<213> Mus musculus

<400> 47

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cgcctccctt cctccccgct acctacctgt gcagtagaga gatacccaga actgatgagg	120
gctttctcta tgttctgcca tctttagatt ttgactaaag gagaagttca agtgtcagat	180
aaagaacggc acacacagct ggagcagatg tttagggata tcgccaccat tgtggcagac	240
aagtgtgtga acccagaaac aaagagacct tacaccgtta tcctcatcga gagagccatg	300
aaggacatcc actactccgt gaaacccaac aagagcacia agcaacaggt aagggttcct	360
tgttgtcctc gggacctaag gccatggaag tgcctgatgc gcctgcctcc ctatctctgg	420
tgctggggtc agcagcacac acttccaggc tgcctggctg tgctgggtgct catcattctg	480
agcagaccct ctcccggctg agccataccc ttagctgctg ctctcagtg tgacggaaca	540
caaatacaca cagaactctt tttgtttgtt tgtttgtttg ggggtttttt tttttttttt	600
ttagttttgt ttttggctct tcgagacagg gtttctctgt attgccctgg ctgtcctgga	660
actcgtctg tagcccaggc tggcctcgaa ctcaaaaatc cgctgcctc tgcctcccaa	720
gtgctgggat taaaggcgtg ggccaccaca cctggctcat acagaactct tatttcctgc	780
ccagctcaaa cctttaaaga gaaagcttgg actttgagtc acctgagccc ttttgctgtt	840
tgtgtttatt aacatatttc ctacagctca gccctgtcac gccagccatt ctgctggcct	900
ggattccaag ca	912

<210> 48

<211> 1528

<212> DNA

<213> Mus musculus

<400> 48

ctcaaaagaa ataacaagtc ggggtgtggtg gtgcacacct ttaatcccag cactcgggag	60
gcagaggcag gcgaatttct gagttggagg ccagcctgag ttccaggaca gccagggcta	120
tacagagaaa ccctgtctcg aaaaacaaaa aaaaaaaaaa aaaaaaaaaa aagaaggaag	180
aaagaaagaa agcaagcaag caagcaagcg agcaatggtg ttccacagca cgaagtatag	240
tatgacccat ataactaaca gcctgcctga gttattactg cttaggcagt ggcctgactt	300

Sequence Listing.txt

```

agacctgatac atgtacgtcc agaaaaggcc tgggtggaaaa ctggaaggag ccagagaaga 360
acctccatac acaagaactc tgggcaacct cagaactact catgtccatt ccacaacca 420
accaggggct tctctgtaca gggaacaagc acaggagagt catcaaggga ctaacgagct 480
cacatcgacc acctgtgcac tgttcccctc tccataaacc tcagattgca caagctcagc 540
ccccgtctcc tccacatcca gctgccagtg actgacgctg cctgcgggtc agtggcagag 600
gtgccaaaggc aaaggcctgt gaggacctta ctgtgtatca ctaggcgtcc cagcactctg 660
gatgactggt attagacttt caggggaagcc actagtctct ctacccagtg acagcttctc 720
aggcacgggt gtccacagag tgggaagggc cttgctggac ggctgggtggg aagctctggg 780
ccattttccc aaggagcatg tctctgtctc caccactgtt agaattactg tgaactcagc 840
tatgggctca ggtcctcaag gttcatggct taaaacaggg ttggcttaga agtctccgag 900
gccacaacaaa agacattttg tctgttctag agatgtacga aattcccacc gcacacattt 960
tcttgctttt agagagctga ggacagccca ggtcctcgtg catgctgggt agttgcttca 1020
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cttggctgta aaactgctgg cataaggcag ctatgtggaa actgctttgt tcatgtctaa 1200
catataaatt tgtgcagcac aaaaactaag taacgagcac cccttgttct gtcttaaagg 1260
ctttggaagt gataaagcag ctgaaagaga agatgaagat agagcgggcc cacatgcat 1320
tgcgcttcat cctgccagtg aacgaaggga agaagctgaa ggagaagctg aagccactga 1380
tgaagggtgt ggagagtga gactacagcc agcagctgga gatcgtaaga tgatggtggc 1440
ggggagcagg tggcgagcc aagggtccat gattatgacc ttaacacatt attattcttg 1500
gcttccttct acccaaatac cctcgttc 1528

```

<210> 49

<211> 1440

<212> DNA

<213> Mus musculus

<400> 49

```

gtatactgtg gctgtcttca gacacagcag aaggcatcgg atcccattac agatggttgt 60
gagccacttg tggttgctgg gaattgagct cagaacctct ggaagagcag ccagtgtga 120
gcatctctac agcctctgaa cccgggtctt gatgctaagc agtgctcact ctcagtatga 180
gctgcagcac tggccagggt agtcttcaag ggtgtcttaa tcaggctttt actgctgtga 240
acagacacca ggaccaatgc aagtcctata aagaacaaca tttagttgag tctggcttac 300

```


Sequence Listing.txt

aggttcagag gttcagtcca ttatcaaggt gggagcatgg tagtatccag gtgggaatga	360
tacaggaggg gctgagagtt cgacatcttc atctgaaggc tgctagcaga atactgactt	420
cgaggctgtt aggatgaggg tcttaaagcc tatgaccaca gggacacacc ttctaatagt	480
gtcactcccc gggctgagca tatacaaacc gtaacacggg ataagtgcct ttcccaaagt	540
ccaacagtag gtgcttagaa tcgagacaga accccaggcc cagcctgctg ccctggcctc	600
catgtgagca gcacctagaa cacagtcata gatctgccct gagcattcaa actgggctta	660
ttctgtgccg atgccatct tcccttgaa accagctgtg ttactcattg cagggtgtgcc	720
tcacgaccc aggctgcttc agagaaattg atgagctaataaaaaaggaa acgaaaggca	780
ggggttctct ggaagtgtc agtctgaagg acgtggagga aggcgatgag aagtttgaat	840
gacaccgccc ggctcctcaa ctggagcacg accgaggacg cttgttcctc acagcagcag	900
ctcgttctgt gacctgcaa acgccctgct cacgcgacgt gccactttcc atcttgtgtt	960
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aaaataacct aaaatacaga gtccagaaca gctgctcact gctgcgtctg cttttctagt	1080
tccaggggac cagagacagc attggtggat aagaaggtag agttagtcca tgacagatca	1140
ttggagaggg gtctgaataa caaagggggg acgcctgctg gaaagaagat ggggtgtttc	1200
tgaataatga agtgcaggta tgggggtgtga gcatggagag aagagttcct gggtcctcc	1260
caatagattt ataataccta gggagaattt gactttctaa ttttcaacca acatgctacc	1320
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ggtttataat atatgttagt atagttaaaa ttctatgtaa tcaataaaac ttatttttac	1440